

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch  
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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-006519**Date Inspected:** 29-Apr-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 730**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**Contractor:** Japan Steel Works**Location:** Muroran, Japan**CWI Name:** Chung Fu Kuan**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower, Jacking, and Deviation Saddles**Summary of Items Observed:**

On this date Caltrans OSM Quality Assurance (QA) Inspector Mr. Art Peterson was present during the times noted above for observations relative to the work being performed in Fabrication shop #4 and the Foundry shop at Japan Steel Works.

**Fabrication Shop #4**

Machining Operation of Saddle: Tower Saddle Segment T1-1 (cast section welded to steel section)

The QA Inspector observed that tower saddle segment T1-1 is located in Machine Shop #4 to have the final machining performed. On this date, the QA Inspector observed that the set-up for machining the top of trough section was in process on the tower saddle segment.

Machining Operation of Saddle: West Deviation Saddle Segment W2-E2 (cast section welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E2 is located in Machine Shop #2. On this date, the QA Inspector observed JSW personnel were drilling holes in the end section of the rib plate.

Storage of Saddle: West Deviation Saddle Segment W2-E1 (cast welded to steel section)

The QA Inspector observed that west deviation saddle segment W2-E1 has been moved from Machine Shop #2 to Fabrication Shop #4. On this date, the QA Inspector observed that no work was performed on the west deviation saddle segment.

Fit-up and Welding Operation of Saddle: Tower Saddle Segment T1-3 (cast section to steel section)

The QA Inspector observed that the fit-up operation has started on tower saddle segment T1-3 (cast section) to

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tower saddle segment T1-3 (steel section). The QA Inspector also observed NIS QC Dimensional Inspector Mr. R. Kumagai (#132) and verified that the fit-up of the rib (cast sections) to rib (steel sections) and the stem (cast sections) to stem (steel sections) that are required to be mill to bear met the minimum requirements for mill to bear surfaces of the partial-joint penetration groove welds (1 to 1.5) mm. The QA Inspector also observed JSW welding personnel Mr. R. Iizuka (06-2643) and Mr. R. Kato (07-4510) welding temporary attachments- (stay plates) in between the trough sections to the (weld surfacing layers) previously deposited on the cast section per the FCAW process in the (2F and 3F) horizontal and vertical positions. The purpose of welding the stay plates in between the trough sections are for dimensional and distortion control prior to the start of the welding operation. The Quality Control Inspector Mr. Chung Fu Kuan informed the QA Inspector that JSW uses their in-house weld procedure specifications to perform the welding of the stay plates. The QA Inspector observed that the fit-up operation and the welding of the stay plates in between the trough sections were in process at the end of the QA Inspectors' shift.

Welding Operation of Saddle: West Deviation Saddle Segment W2-E3 ( cast section joined to steel section)

The QA Inspector observed the partial-joint penetration groove weld operation on the rib plate (steel section) to rib plate (cast section) of west deviation saddle segment W2-E3. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the welding operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Ohkawa (03-3091) on weld joint no. E3Y-16U were in compliance with WPS SJ-3011-6 per the FCAW process in the (1G) and position using (1.6) mm diameter TM95 electrode. The QA Inspector observed that the partial-joint penetration groove weld operation was completed by the end of the QA Inspectors' shift.

Welding Operation of Saddle: West Deviation Saddle Segment W2-W1 (cast section)

The QA Inspector observed JSW personnel previously removed W2-W1 (cast section) that was temporarily fit to W2-W1 (steel section). The QA Inspector also observed JSW welding personnel Mr. H. Mitsumori (81-5438) welding temporary attachments- (stay plates) in between the trough section to the (weld surfacing layers) previously deposited on the cast section per the FCAW process in the (2F and 3F) horizontal and vertical positions. The purpose of welding the stay plates in between the trough section is for dimensional and distortion control prior to the start of the welding operation. The Quality Control Inspector Mr. Chung Fu Kuan informed the QA Inspector that JSW uses their in-house weld procedure specifications to perform the welding of the stay plates to the previously deposited (weld surfacing layers). The QA Inspector observed that the welding of the stay plates in between the trough section was in process at the end of the QA Inspectors' shift.

Post Weld Heat Treatment Operation of Saddle: Tower Saddle Segment T1-2 (cast section welded to steel section)

The QA Inspector observed that the post weld heat treatment- (stress relief) operation on tower saddle segment T1-2 was completed. The Quality Control Inspector Mr. Chung Fu Kuan informed the QA Inspector that JSW personnel will move the tower saddle segment into Machine Shop #4 to perform the machining of the root face on the double bevel groove weld joint to meet the mill to bear tolerances of the rib and stem plates prior to the fit-up operation of the base plate.

Welding Operation on Saddle: West Deviation Saddle Segment W2-W2 (steel section)

The QA Inspector observed the partial-joint penetration groove weld operation on the rib plate to stem plate of west deviation saddle segment W2-W2. The QA Inspector observed Quality Control (QC) Inspector Mr. Chung Fu Kuan verify prior to and during the welding operation that the minimum preheat temperature of 160 degrees Celsius was maintained and the welding parameters of JSW welding personnel Mr. T. Watanabe (08-5153) on

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weld joint no. W2Y-5V and Mr. M. Kato (08-5018) on weld joint no. W2Y-6V were in compliance with WPS SJ-3011-3 per the FCAW process in the (1G) flat position using (1.6) mm diameter TM95 electrode and the SMAW process in the (1G) flat position using (4.0) mm diameter E9018 electrode. The QA Inspector observed that the partial-joint penetration groove weld operation was completed by the end of the QA Inspectors' shift.

### Foundry Shop:

Storage of Saddle: West Deviation Saddle Segment W2-W2 (cast section)

The QA Inspector observed that west deviation saddle segment W2-W2 (cast section) is located in the Foundry Shop for storage until west deviation saddle segment W2-W2 (steel section) is ready for the fit-up operation. On this date, the QA Inspector observed that no work was performed.

Grinding Operation on Saddle: East Saddle E2-E1

The QA Inspector observed that JSW personnel were not performing the grinding operation on this date of the shaped areas on the outside of the trough section and on the rib sections where previously the excess removal of cast material- (scarfing operation by the air-carbon-arc method) on the rough casting was performed on east saddle E2-E1. The purpose of the grinding operation is to profile the areas to a smooth finish and subsequently the NDT operation. The JSW representative Mr. Hideaki Kon informed the QA Inspector that the grinding operation would resume at a later date.

Repair Operation pending on Saddle: East Saddle E2-W1 (cast section)

The QA Inspector was informed by JSW Representative Mr. Hideaki Kon that JSW personnel will perform the gouging operation (air-carbon arc method) of discontinuities marked up by NIS QC NDT Personnel Mr. H. Kohama (#86) from the magnetic particle test (MPT) inspection and the ultrasonic test (UT) inspection on the rib section and trough section on the outside of east saddle E2-W1 (cast section). The QA Inspector observed that the gouging operation has not started on this date.

NDT Operation on Saddle: West Deviation Saddle Segment W2-W3 (cast section)

The QA Inspector observed NIS NDT Personnel preparing west deviation saddle segment W2-W3 (cast section) for liquid penetrant test (PT), magnetic particle test (MPT), and ultrasonic test (UT) inspection by (laying out) marking (300 x 300) mm grid lines on the inside and outside of the trough and on the rib sections for the purpose of tracking, identification and guidance in scanning. The QA Inspector observed that the layout operation was completed and by the end of the QA Inspectors' shift.

Machining Operation of Saddle: West Jacking Saddle (cast section)

The QA Inspector observed that west jacking saddle is located in Machine Shop #2. On this date, the QA Inspector observed JSW personnel were machining / milling the surface on one end of the rib section.

Unless otherwise noted, all observations reported on this date appeared to be in general compliance with applicable contract documents.

### Summary of Conversations:

No significant conversations were reported on this date.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, 510 385-5910, who represents the Office of Structural Materials for

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your project.

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**Inspected By:** Peterson, Art

Quality Assurance Inspector

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**Reviewed By:** Lanz, Joe

QA Reviewer